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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10 028,981	12.28.2001	Wook-Sung Kim	8733.570.00	3738

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EXAMINER

ERDEM, FAZLI

ART UNIT PAPER NUMBER

2826

DATE MAILED: 06.04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/028,981

Examiner

Fazli Erdem

Applicant(s)

KIM ET AL

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 November 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1026 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-13 rejected under 35 U.S.C. 103(a) as being unpatentable over Lyu et al. (US 2002/0021400 A1) in view of Winker (5,612,801) in view of Fujita et al. (5,956,110) further in view of Yang et al. (6,181,400) further in view of Kameyama et al. (6,342,934) further in view of Uchiyama et al. (6,177,153) further in view of Conner et al. (5,050,965).

Regarding Claims 1-13, Lyu et al. disclose liquid crystal displays which comprises two parallel spaced substrates and a liquid crystal layer with negative dielectric anisotropy interposed between the substrates. The ratio  $d/p$ , the cell gap  $d$  between the substrates to the pitch  $p$  of the liquid crystal layer, is equal to or less than 0.3 and the retardation value  $\Delta n * d$  may be in the range of 0.25-0.4. In absence of electric field, the liquid crystal molecules are arranged vertically to the substrates and when the sufficient electric field is applied, the liquid crystal molecules are parallel to the substrates and twisted by 90 degrees from one substrate to another. Lyu et al fail to disclose the required A,C, and O plates, refractive index, retardation and compensation structures, retardation in the required manner, and orientation structures, and multilayer stacking structures. However, Winker discloses a monolithic optical compensation device for improved viewing angle in liquid crystal displays where the required A, C, and O plates are disclosed. Furthermore, Fajita et al. disclose a liquid crystal display panel and display

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device where the required refractive index is disclosed. Yang et al. disclose a discotic-type twist-film compensated single-domain or two-domain twisted nematic liquid crystal displays where the required retardation and compensation structure is disclosed. Kameyama et al. disclose polarizer lighting device and liquid crystal display where the required retardation in the required manner is disclosed. Uchiyama et al. disclose an orientated film having pores where the required orientation structure is disclosed. Finally, Conner et al. disclose a stacked LCD color display where the required multilayer stacking structure is disclosed.

It would have been obvious to one of having ordinary skill in the art at the time the invention was made to include the required required A,C, and O plates, refractive index, retardation and compensation structures, retardation in the required manner, and orientation structures, and multilayer stacking structures in Lyu et al. as taught by Winker, Fujita et al., Yang et al., Kameyama et al., Uchiyama et al. and Conner et al. in order to have a liquid crystal display device with better performance.

2. Claims 14-26 rejected under 35 U.S.C. 103(a) as being unpatentable over Lyu et al. (US 2002/0021400 A1) in view of Gunning et al. (5,589,963) further in view of Fujita et al. (5,956,110) further in view of Yang et al. (6,181,400) further in view of Kameyama et al. (6,342,934) further in view of Uchiyama et al. (6,177,153) further in view of Conner et al. (5,050,965).

Regarding Claims 14-26. Lyu et al. disclose liquid crystal displays which comprises two parallel spaced substrates and a liquid crystal layer with negative dielectric anisotropy interposed between the substrates. The ratio  $d/p$ , the cell gap  $d$  between the substrates to the

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pitch  $p$  of the liquid crystal layer, is equal to or less than 0.3 and the retardation value  $\Delta n \cdot d$  may be in the range of 0.25-0.4. In absence of electric field, the liquid crystal molecules are arranged vertically to the substrates and when the sufficient electric field is applied, the liquid crystal molecules are parallel to the substrates and twisted by 90 degrees from one substrate to another. Lyu et al fail to disclose the required A,C, and O plates, refractive index, retardation and compensation structures, retardation in the required manner, and orientation structures, and multilayer stacking structures. However, Gunning et al. disclose a pixilated compensators for twisted nematic liquid crystal displays where the required A, C, and O plates are disclosed. Furthermore, Fajita et al. disclose a liquid crystal display panel and display device where the required refractive index is disclosed. Yang et al. disclose a discotic-type twist-film compensated single-domain or two-domain twisted nematic liquid crystal displays where the required retardation and compensation structure is disclosed. Kameyama et al. disclose polarizer lighting device and liquid crystal display where the required retardation in the required manner is disclosed. Uchiyama et al. disclose an orientated film having pores where the required orientation structure is disclosed. Finally, Conner et al. disclose a stacked LCD color display where the required multilayer stacking structure is disclosed.

It would have been obvious to one of having ordinary skill in the art at the time the invention was made to include the required A,C, and O plates, refractive index, retardation and compensation structures, retardation in the required manner, and orientation structures, and multilayer stacking structures in Lyu et al. as taught by Gunning et al., Fujita et al., Yang et al., Kameyama et al., Uchiyama et al. and Conner et al. in order to have a liquid crystal display device with better performance.

*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fazli Erdem whose telephone number is (703) 305-3868. The examiner can normally be reached on M - F 8:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (703) 308-6601. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

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June 2, 2003